Multispectral UV imaging for determination of the tablet coating thickness

The applicability of off-line multispectral ultraviolet (UV) imaging in combination with multivariate data analysis was investigated to determine the coating thickness and its distribution on the tablet surface during lab scale coating. The UV imaging results were compared with the weight gain measured for each individual tablet and the corresponding coating thickness and its distribution measured by terahertz pulsed imaging (TPI). Three different tablet formulations were investigated, two of which contained UV active tablet cores. Three coating formulations were applied: Aquacoat® ECD (a mainly translucent coating) and Eudragit® NE (a turbid coating containing solid particles). It was shown that UV imaging is a fast and non-destructive method to predict individual tablet weight gain as well as coating thickness. The coating thickness distribution profiles determined by UV imaging correlated to the results of the TPI measurements. UV imaging appears to hold a significant potential as a PAT tool for determination of the tablet coating thickness and its distribution resulting from its high measurement speed, high molar absorptivity and a high scattering coefficient, in addition to relatively low costs.

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